EDIBLE FATS

This is a continuation of application Ser. No. 07/680,186, filed Apr. 3, 1991, now abandoned.

FIELD OF THE INVENTION

The present invention relates to improvements in edible fats, in particular to improved hardstocks for use in spreads having a low content of saturated fat and to spreads containing these hardstocks.

BACKGROUND OF THE INVENTION

A vast number of edible fats are available for use in the manufacture of spreads and other fat containing foodstuffs. The rheological properties of these fats span a very wide range from low melting liquid oils to high melting fats with considerable variation in the shape and slope of melting and crystallization curves. In edible spreads it is desirable to use a liquid oil as the bulk of the fat, both for reasons of economy and nutrition. Consequently, the so-called "hardstocks" are needed to provide the structural component of spreads in the form of a fat in a crystalline phase at room temperature.

It is well accepted that the saturated fat content of the diet should be rather low. As hardstocks by necessity contain saturated fats, the quantity of hardstock in a product should be minimised. There is a need for hardstocks which function well at very low levels without a bad influence on the 'oral melt' of the product. A bad oral melt is a particular problem when the hardstock contains very high levels of saturated fatty acids as TAG's and in particular when the hardstock contains tripalmitic and tristearic TAG's.

A commonly used hardstock comprises a hydrogenated and interesterified blend of a palm oil (rich in C-16 and C-18 saturated fatty acids) with a so-called lauric fat (rich in C-12 saturated fatty acids). The best known examples of the lauric fats include coconut and palm kernel fats although a number of other tropical palm oils fall into this classification.

"BAILEY's industrial oil and fat products" Volume 2 fourth edition at page 159 describes how short chain fatty acids (C6–C14) improve the melting properties of spreads, while long chain fatty acids (C20–C22) provide stiffening power. BAILEY's goes on to describe how it is well known that both these properties can be combined using interesterified oil blends such as coconut/palm blends (as mentioned above), and coconut/hardened rape blends.

It must be appreciated that at least two different types of rapeseed oils are known. Originally, only so-called "high erucic acid" rapeseed or "HEAR" oil was known. Developments in crop breeding led to the production of so-called "low erucic acid rape", or "LEAR" oils. It is this second oil which is used in edible products.

FR 2570388 (GERSCHEL) discloses a fat composition for the manufacture of margarine produced by the interesterification of a hydrogenated vegetable oil including a low erucic acid rapeseed oil (colza) with a source of palmitic acid, such as palm fractions and technical tripalmitin. This is used as a hardstock ('mixed with fluid vegetable oil') in margarine manufacture. Looking at the GERSCHEL specification it can be appreciated that the rape seed oil is only partially hydrogenated and because it is low erucic acid rape oil it is rich in C-18 fatty acids. Although these products have good oral melting properties, with 20% hardstock levels, partially hydrogenated fats contain both cis and trans monosaturates, and these products are not acceptable to consumers, who wish to minimise their intake of trans fatty acids.

Edible fats are also subject to considerable variation in price. In particular, the lauric fats and other so-called "tropical" fats are cheap at present but may become more expensive in the future whereas liquid oils obtainable from more temperate crops are also relatively cheap but likely to remain so. A further problem with 'tropical fats' is that they are rich in C-16 fatty acids and is believed by some medical authorities that the intake of C-16 saturated fatty acids should be reduced. Most other edible oils and fats contain low levels of C-16 fatty acids and in particular edible liquid vegetable oils are rich in the nutritionally desirable C-18 unsaturated fatty acids.

Faced with the problems of tropical fats, workers have developed the techniques of "directed interesterification" to enable liquid vegetable oils to be used in spread hardstock production. However, directed interesterification is an expensive alternative to the use of these tropical fats.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

We have now determined that hardstocks containing C16 (Palmitic—"P") or C18 (Stearic—"S") and C22 (Behenic—"B") saturated fatty acids combine structuring properties with a good oral melt when present at relatively low levels. In particular, our hardstocks comprise mixed triglycerides of P and/or S, and B fatty acid residues, in particular B2P and B2S TAGs. This reduces the level of use of tropical fats (normally present as P2M TAGs) and avoids use of directed interesterification. Moreover, these products contain low and preferably almost zero levels of trans fatty acids as the fats present are substantially fully hydrogenated.

Accordingly a first aspect of the present invention provides a fat blend, for use as a hardstock in an edible emulsion spread, obtainable by interesterification of a fat rich in behenic acid together with a fat rich in palmitic and/or stearic acid such that in the interesterified mixture the behenic acid content is at least 10% and the sum of palmitic and stearic acid content is at least 50%.

Typically, such hardstock fats may be obtained by interesterification of 10%–90% (by weight) wet fractionated palm stearin (80% palmitic acid) with 90%–10% (by weight) fully hydrogenated high erucic rapeseed oil. The preferred ratio of components is 40% of the behenic acid source and 60% of the palmitic and/or stearic acid source. For convenience it is noted that so called "wet fractionated palm stearin" comprises some 80% by weight of palmitic acid whereas high erucic acid rapeseed oil hardened to a slip-melting point of around 70° C. comprises around 48% behenic acid, the remainder being mainly C-18 fatty acids.

Typically, the hardstock and therefore the interesterified fat blend comprises around 27% behenic, 35% palmitic and 35% stearic acids.

Without wishing to be bound by theory, it is believed that the novel hardstocks with saturated C16/C22+C18/C22 (palmitic/behenic) fatty acids (length ratio: 0.73) are in their behaviour as hardstocks similar to the known hardstocks with saturated C12/C16 (lauric/palmitic) fatty acids (length ratio:0.75). The ratio for the C12/C22 (lauric/behenic) fatty acids, as mentioned above, is 0.55. The corresponding ratio for C18/C22 (stearic/behenic) fatty acids is 0.82. It is also expected that other randomised components of the fat blend